CHAIN2GATE
ENERGY AWARE PLATFORM

ENERGY MANAGER

MAC srl
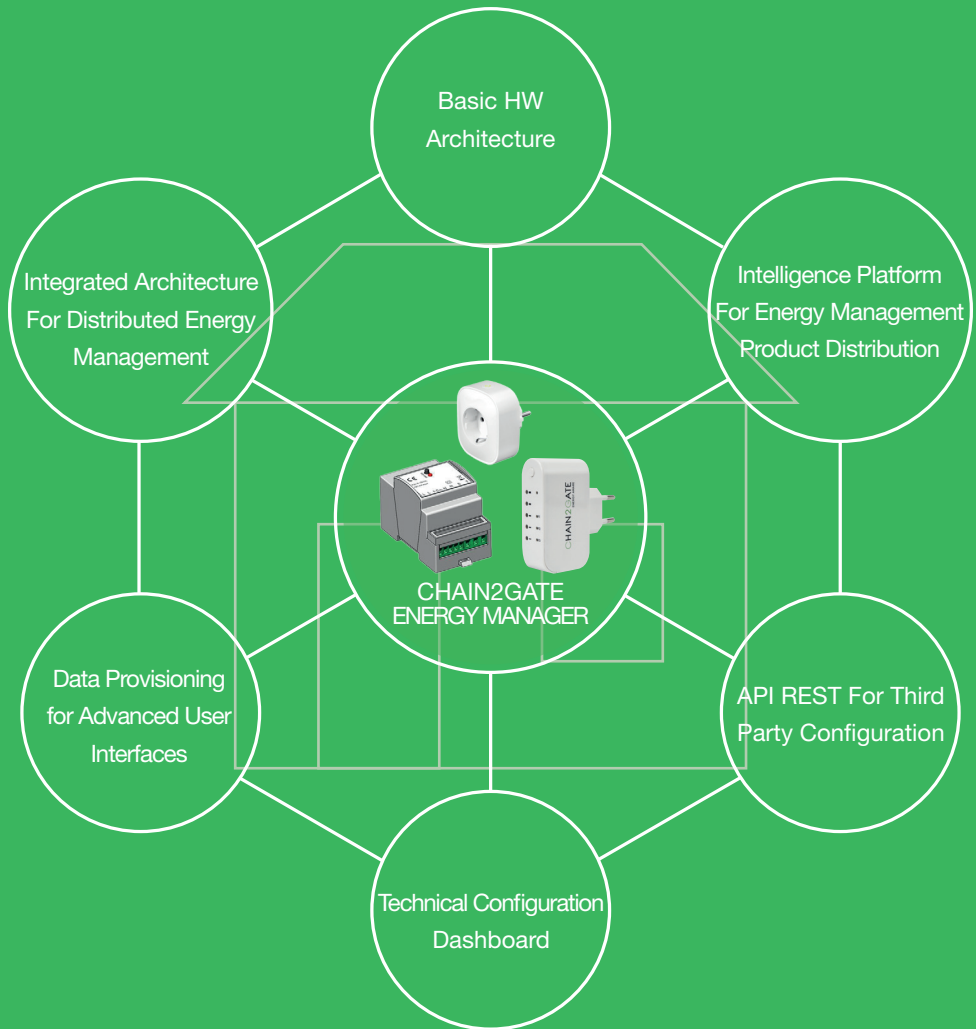Developing the Unexpected

ENERGY MANAGER

Plug&play, Standalone, Auto-discovery

Thanks to the Energy Manager, it is possible to know the energy footprint of your appliances quickly and easily, and in a timely manner. The solution, designed for both the residential and the corporate market, facilitates energy efficiency choices in order to save on bills and preserve well-being in buildings.
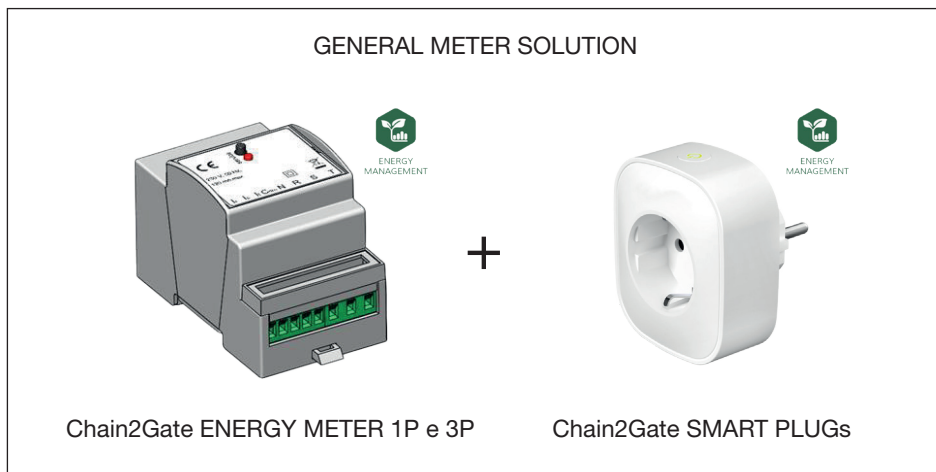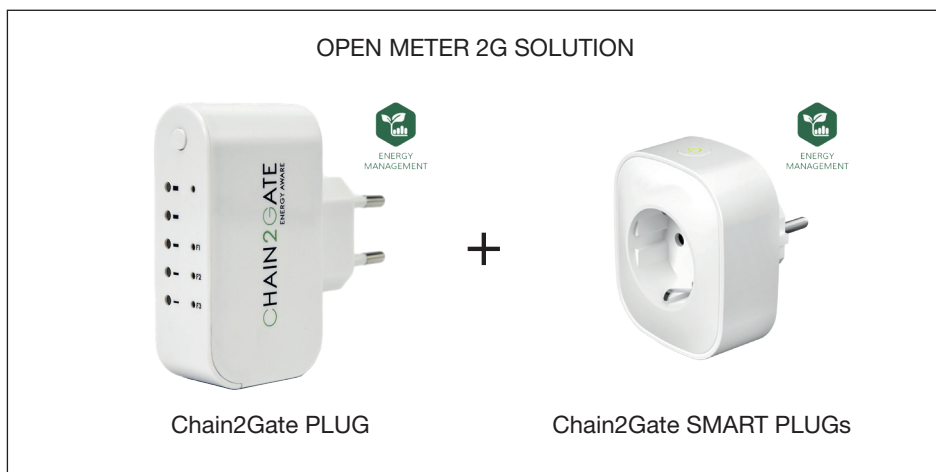
CHAIN2GATE
ENERGY AWARE PLATFORM

Basic HW Architecture

Integrated Architecture For Distributed Energy Management

Intelligence Platform For Energy Management Product Distribution

Data Provisioning for Advanced User Interfaces

CHAIN2GATE ENERGY MANAGER

API REST For Third Party Configuration
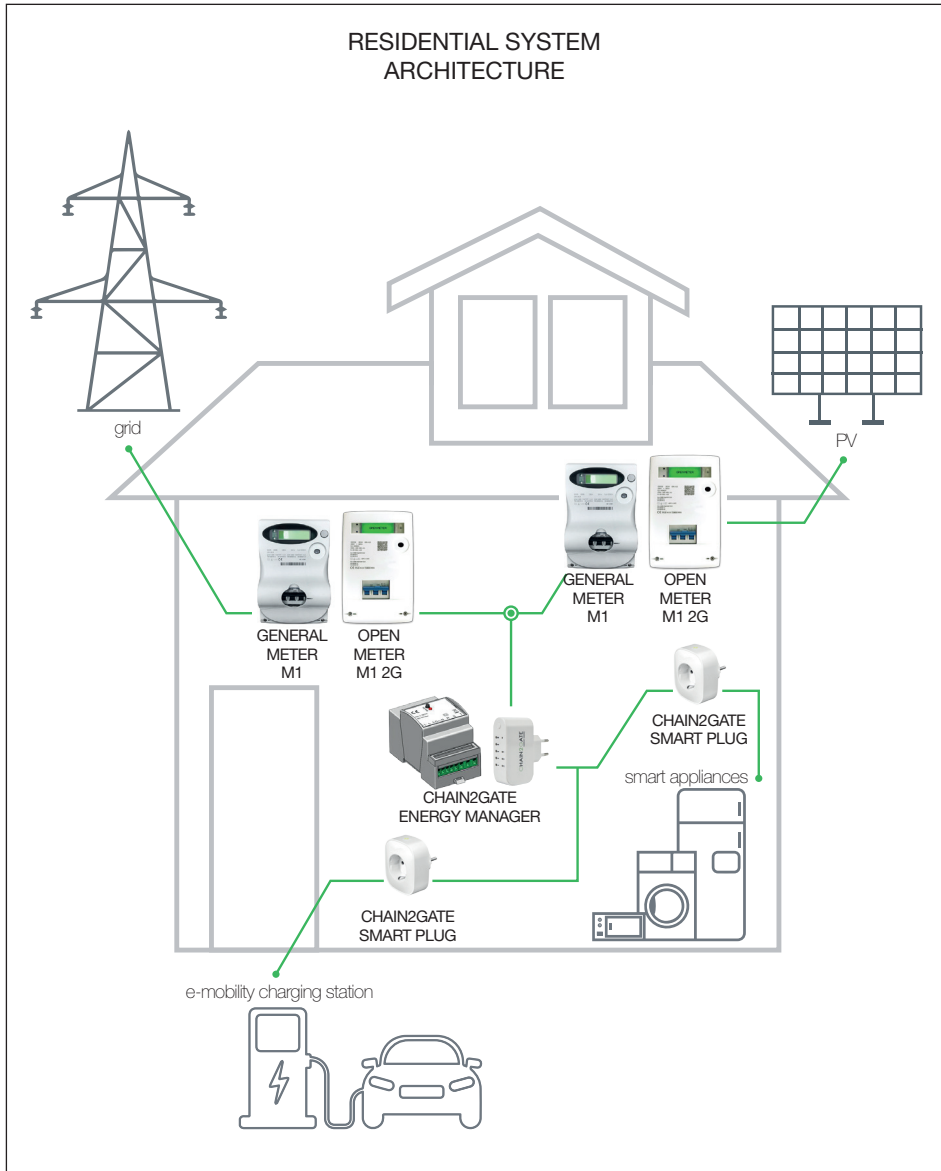
Technical Configuration Dashboard

ENERGY MANAGER
Solutions

The Chain2Gate Energy Manager is an innovative solution and Chain2 native which integrates functions for monitoring energy consumption and load control.
Through Chain2Gate Energy Manager, it is possible to directly manage the loads. Thanks to Chain2 technology, the Energy Manager communicates with the Open Meter and enables energy management and energy awareness services in residential and commercial settings such as Small Offices and SMEs.
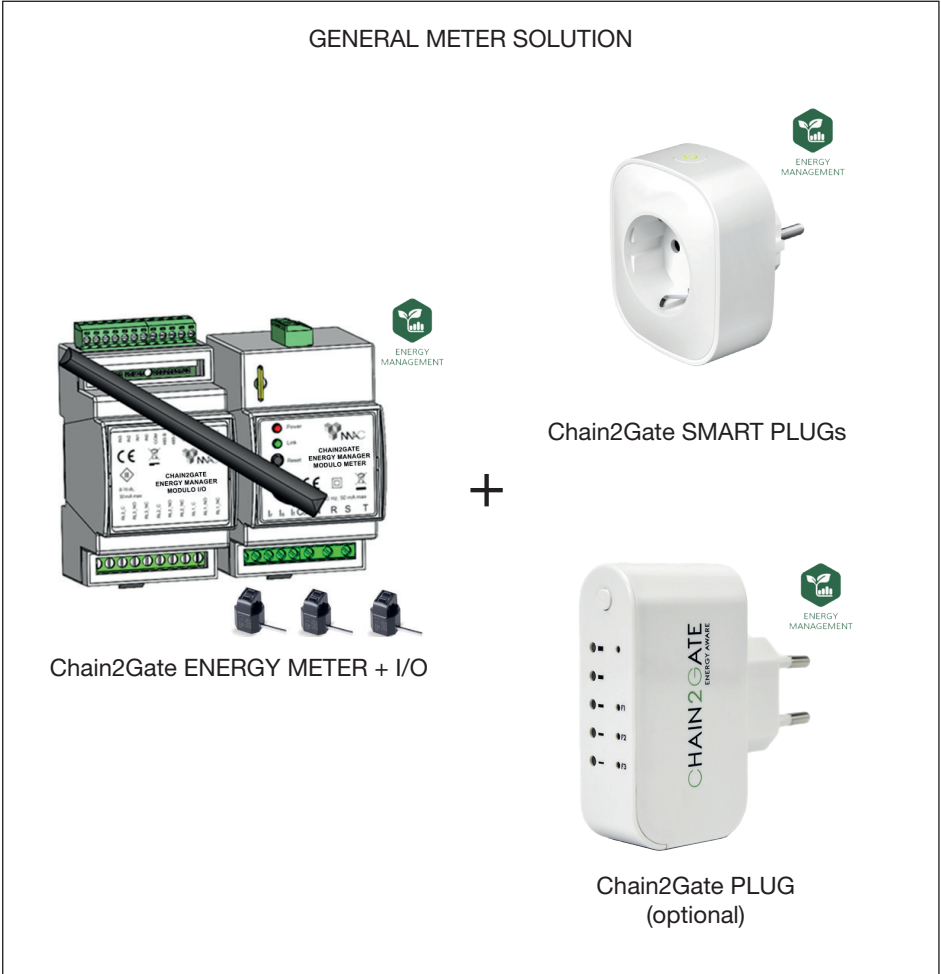
OPEN METER 2G SOLUTION

Chain2Gate PLUG   +   Chain2Gate SMART PLUGs

GENERAL METER SOLUTION

Chain2Gate ENERGY METER 1P e 3P   +   Chain2Gate SMART PLUGs

RESIDENTIAL SYSTEM
ARCHITECTURE

grid

PV

GENERAL
METER
M1

OPEN
METER
M1 2G

GENERAL
METER
M1

OPEN
METER
M1 2G

CHAIN2GATE
SMART PLUG

CHAIN2GATE
ENERGY MANAGER

smart appliances

CHAIN2GATE
SMART PLUG

e-mobility charging station

ENERGY MANAGER
Solutions

In cases where the electrical panel is set up to control specific load lines (household appliances, lighting, and electric car charging stations for example), it is possible to adopt the following solutions for direct control of load lines and/or individual appliances via Chain2Gate SMART PLUGs.

GENERAL METER SOLUTION

Chain2Gate SMART PLUGs

+

Chain2Gate ENERGY METER + I/O

Chain2Gate PLUG
(optional)

CHAIN2GATE
ENERGY AWARE PLATFORM

SYSTEM ARCHITECTURE
SMALL MEDIUM ENTERPRISES, SMALL OFFICES AND HOME OFFICES

PV

electrical cabinet

CHAIN2GATE
ENERGY MANAGER

smart appliances

CHAIN2GATE
SMART PLUG

heat pump

e-mobility charging station
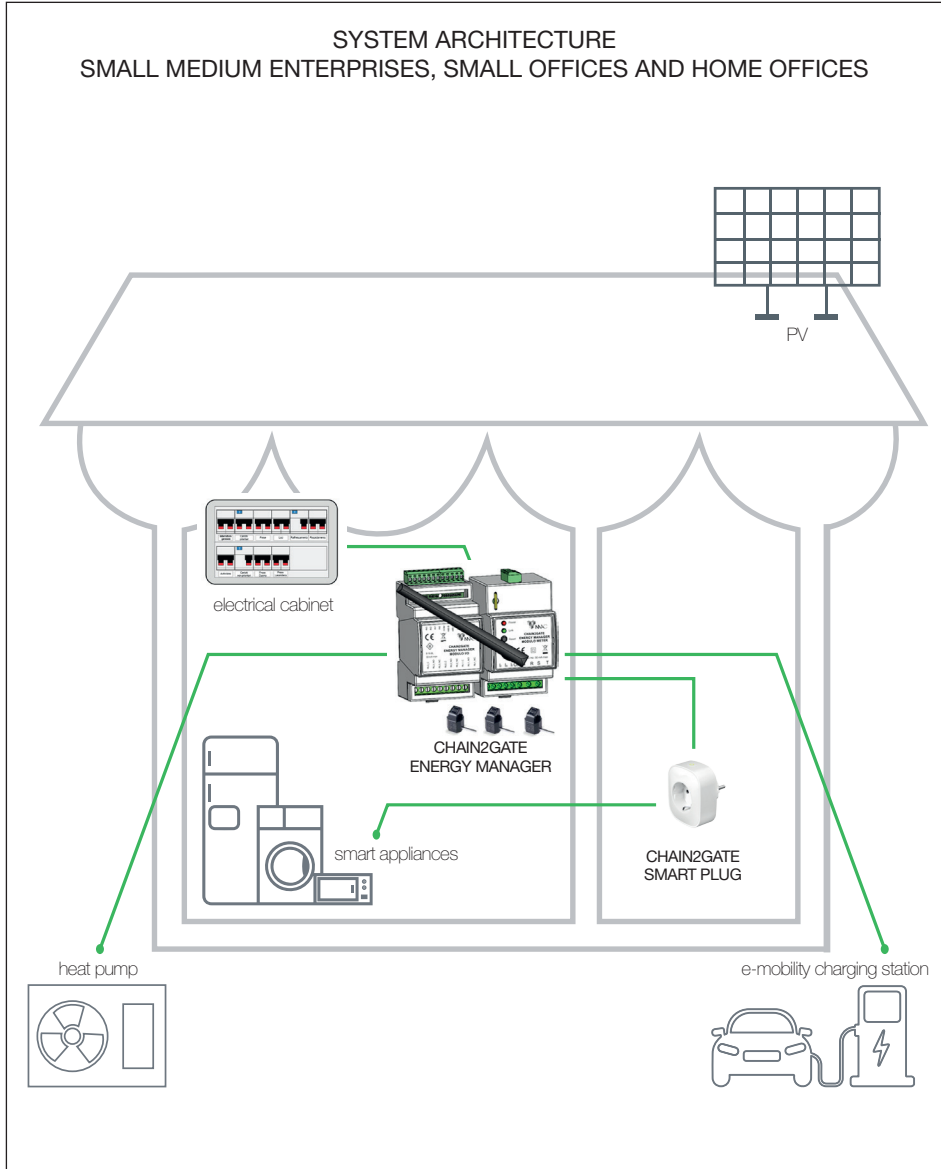
ENERGY MANAGER
Features

WHAT ARE THE IMMEDIATE BENEFITS OF CONSCIOUSLY USING YOUR OWN ENERGY?

The awareness of consumption (collected and individual) and production:

- measuring and visualizing your own electricity;

- the ability to access reports of consumption, production, savings, etc.;

- the ability to set target thresholds for consumption and energy savings;

- the reduction of waste between from 7% to 10%.

USE-CASE: Thanks to direct communication with the 2.0 meter it is possible to detect and read the collected consumption and production data with no more than a Chain2Gate device.


power

day - 24hours
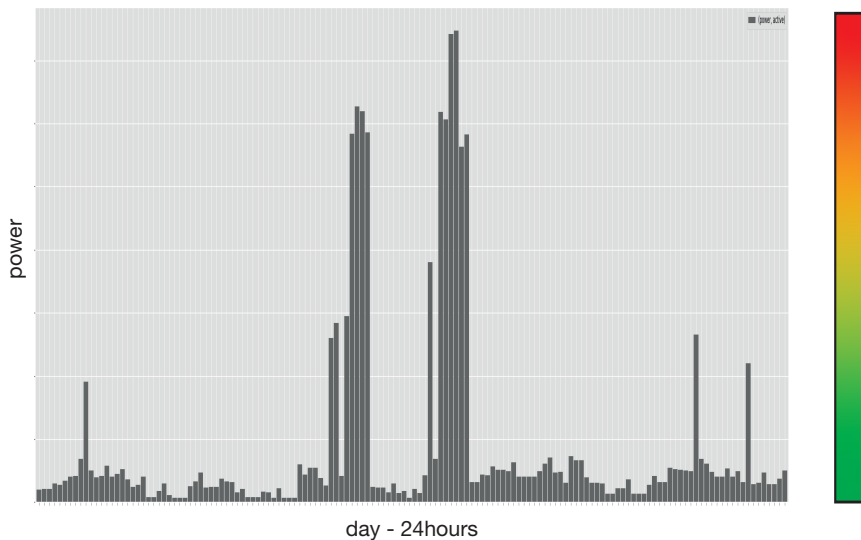
HOW CAN UNPLEASANT BLACKOUTS BE AVOIDED?

Advance notice of disconnection:
- when the available power is exceeded, the electronic meter implements a disconnection policy. The Chain2Gate Energy Manager (automatic coordinating system), enables the control of the main loads with its intelligent devices and with logical priority in order to avoid any possible power disconnection.

USE-CASE: Turning on two energy-intensive appliances at the same time.
The one with the higher disconnection priority will be turned off.
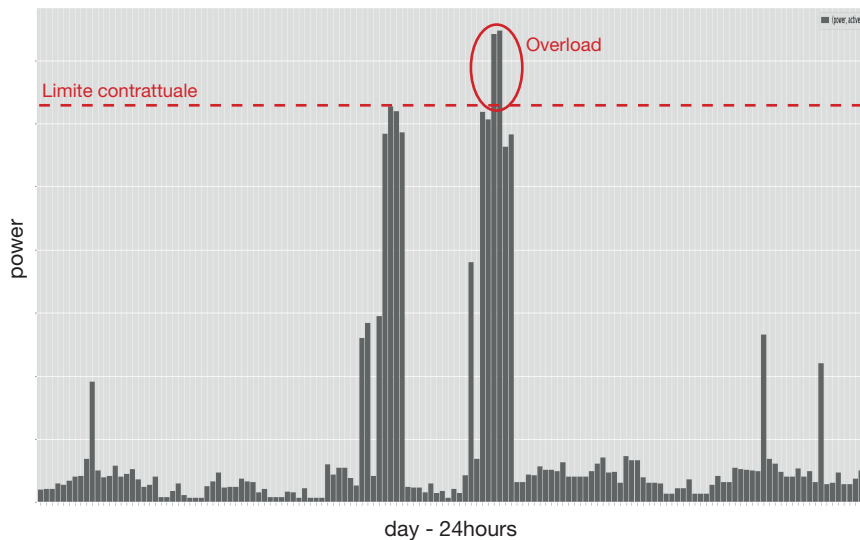
power

Overload

Limite contrattuale

(power_active)

day - 24hours

ENERGY MANAGER
Features

HOW CAN YOUR ENERGY CONSUMPTION BECOME GREENER, MORE EFFICIENT AND MORE ECONOMICALLY CONVENIENT?

Cost reduction:

- it is possible to schedule the start-up of loads by activating them in the time slots that are most convenient as well as avoiding rush hours. In the case of Smart Meter 2G in Italy, the time slots are communicated directly through CHAIN 2;

- the customer optimizes the absorption from the network during the most economically convenient times by "shifting" its loads (Load Shifting). The priority loads (set up by the user) are activated according to the most advantageous consumption ranges given by CHAIN 2 which can then optimize absorption from the network at the most convenient times.

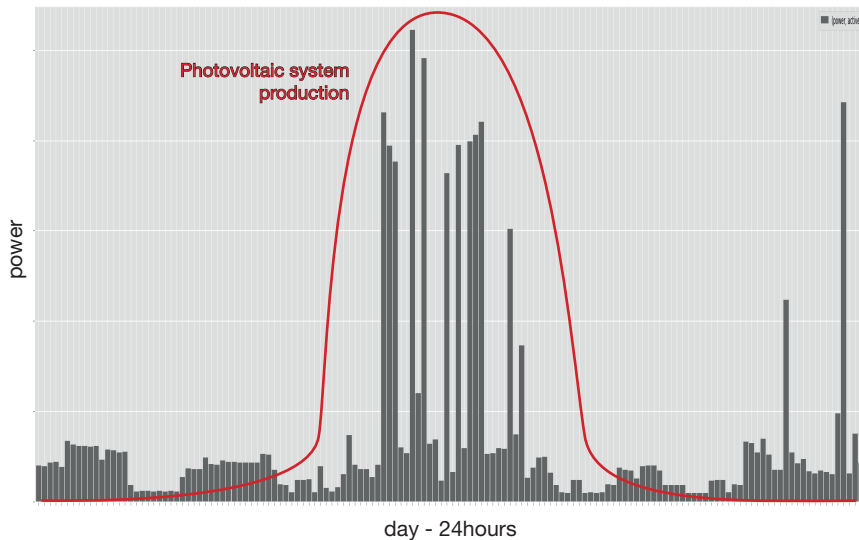USE-CASE: Contract with energy supplier, with a preferred time slot (7-9 p.m.).
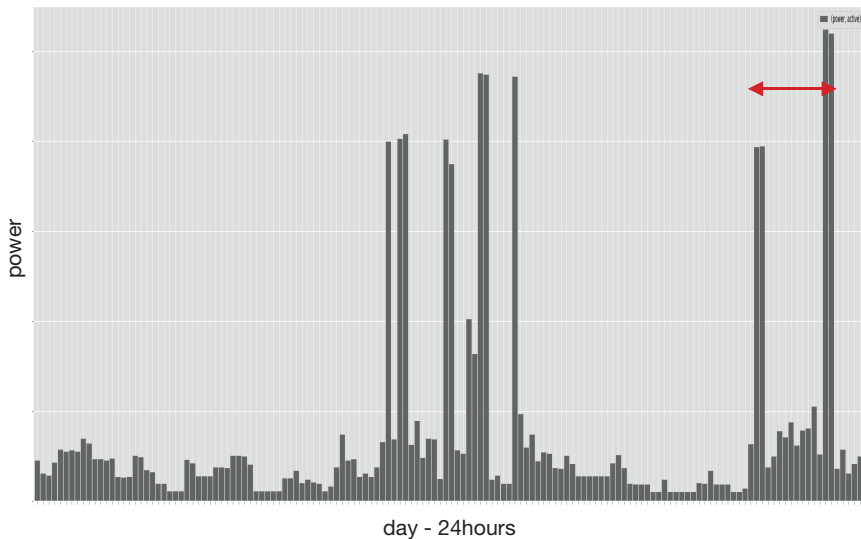
power

day - 24hours

HOW CAN YOUR ENERGY CONSUMPTION BECOME GREENER, MORE EFFICIENT AND MORE ECONOMICALLY CONVENIENT?

By maximising the self-consumption of photovoltaic production:

- in the presence of local generation plants (photovoltaic, for example) and accumulation systems, it is possible to program the ignition in order to maximise self-consumption;
- in the presence of renewable energy systems, it is possible to choose the priority appliances to which a possible surplus of energy can be allocated (electric car charging stations, the boiler, the heat pump, etc.).

USE-CASE: Consumption incentives during production times.

Photovoltaic system production

power

day - 24hours

ENERGY MANAGER
Features

HOW CAN YOUR ENERGY CONSUMPTION BECOME GREENER, MORE EFFICIENT AND MORE ECONOMICALLY CONVENIENT?

By reducing peak demand:

- making it possible to schedule the switching on of the load in order to avoid exceeding certain power thresholds, set personally by the user, imposed by the Energy Distributor for grid balancing or for peak hours aimed at reducing the global energy consumption (see European Commission instructions);

- making it possible to configure which loads are considered to be the priority in case of a power failure and in accordance with the consumption of individual loads (Peak Shaving), and maximising energy management through the automatic shifting of energy consumption by avoiding peak hours.

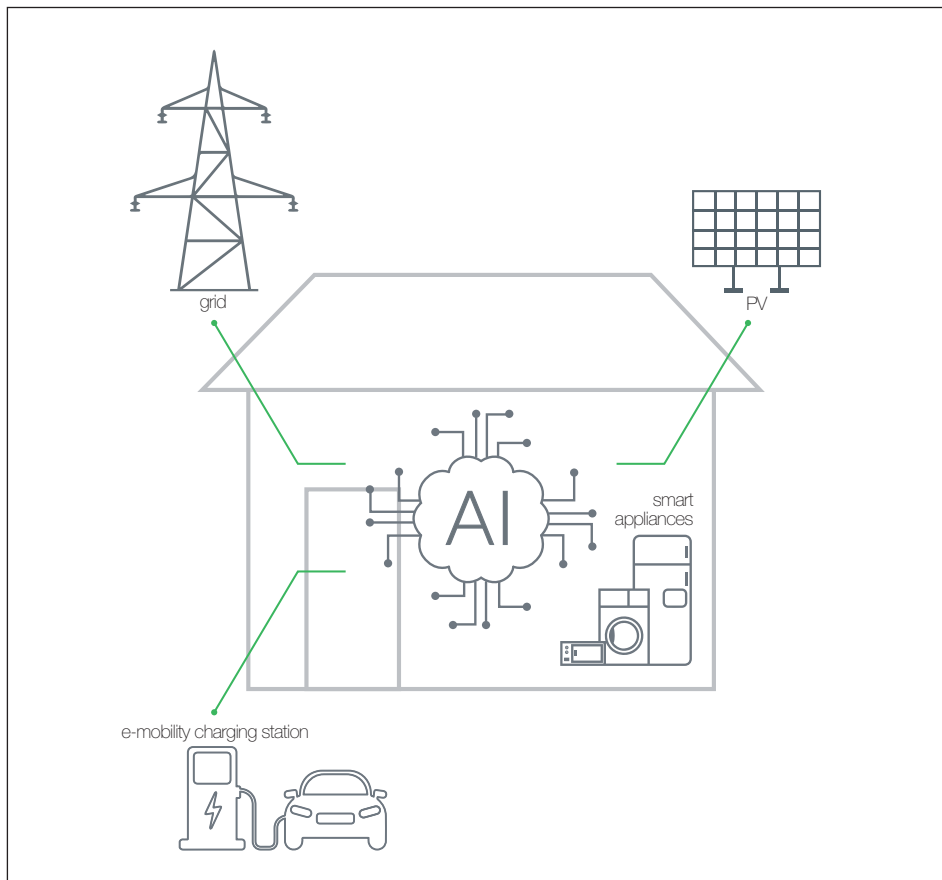USE-CASE: Lowering the contractual limit.

Original contractual limit

Lowered contractual limit

power

day - 24hours
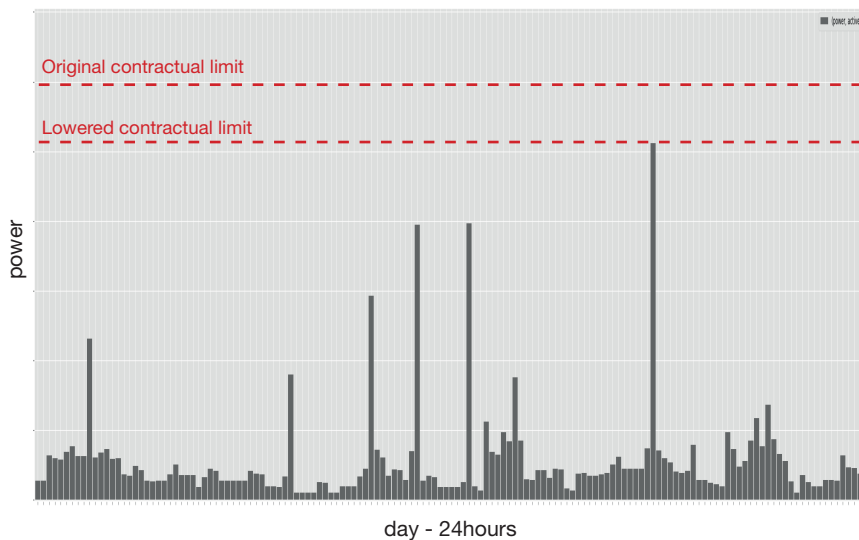
Future Development

Management policies based on Artificial Intelligence (AI)

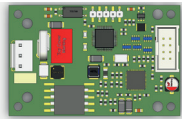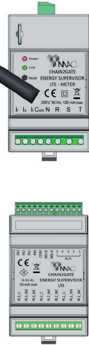Thanks to **Artificial Intelligence (AI)**, it is possible to implement a system that can learn the user's needs and habits for load usage.

This system will be able to manage load activations autonomously, respecting the previously described constraints.

FAMILY OF PRODUCTS

	The **Chain2Gate Plug** can be used by plugging it in to any electrical socket, connecting it to the Wi-Fi network and pairing it with your own 2G meter via APP procedure, available both on Mobile and PC. The Chain2gate allows user to be aware about their data consumption and production.
	The **Chain2Gate DIN** can be used into any electrical panel, connecting it to the Wi-Fi network and pairing it with your own 2G meter via APP procedure, available both on Mobile and PC. This product is recommended for the directly connection to the switchboard to ensure that it works quicky and always active.
	The **Chain2Gate DIN Ethernet** can be used into any electrical panel, connecting it to the Ethernet network and pairing it with your own 2G meter via APP procedure. This product is recommended for the directly connection to the switchboard to ensure that it works quicky and always active and an ethernet connection.
	The **Chain2gate DIN Modbus** can be used into any electrical panel and is recommended for connection directly to the switchboard to ensure that it works quickly and is always active. The Chain2gate DIN Modbus is based on a RS485 MODBUS RTU protocol slave and on the MODBUS RTU TCP SERVER protocol.
	The **Chain2gate DIN Modbus-Ethernet** can be used into any electrical panel and is the solution which allows two different data sending method. The device is based on a WIRED Connectivity characterized by RS485 MODBUS RTU protocol slave or RJ45 ETHERNET MODBUS RTU TCP SERVER protocol and on a Wireless Connectivity characterized by a MODBUS RTU TCP SERVER.
	The **Chain2gate Single-Phase Energy Meter** integrates an energy meter, which makes it possible to receive information even in the absence of the 2G Meter. The device has an internal meter which autonomously measures Energy, Power, Voltage and Current directly with shunt. This solution is indicated for maximum power up to 6 kW.

www.chain2gate.it

The **Chain2gate Energy Meter LoRaWan** can facilitate the transport of production and consumption data to the Network Server and is indicated to be used in projects where a Long Range communication is requested.

The **Chain2gate Three-Phase Energy Meter** integrates an energy meter, which makes it possible to receive information even in the absence of the 2G Meter. The device has an internal meter which autonomously measures Energy, Power, Voltage and Current via external current transformers. This solution is indicated for maximum power up to 30 kW (10 kW for each phase).

The **Chain2gate Three-Phase Energy Meter LTE** integrates an energy meter, which makes it possible to receive information even in the absence of the 2G Meter The device has an internal meter which measures Energy, Power, Voltage and Current via external current transformers. This solution is indicated for maximum power up to 30 kW (10 kW for each phase). The device integrates an LTE communication.

The **Chain2Gate Engine** is proposed as an OEM solution to be integrated directly into third part products such as home appliances, heating appliances, inverters or electric charging stations, thereby transforming them into CHAIN2 native products.

The **Chain2Gate Energy Supervisor LTE**, designed for the Street Lighting market, integrates energy consumption and installation control monitoring functions.
This integrated solution allows the optimization of consumption and complete control through the remote connection with mobile technology. The device integrates an LTE communication, a Chain2 module and an internal meter which autonomously measures Energy, Power, Voltage and Current via external current transformers.

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